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Compatibility Determination

Use: Oil and Gas Exploration and Development

Refuge Name: Kenai National Wildlife Refuge

Establishing Authorities: The Kenai National Moose Range was established by Executive Order 8979 on December 16, 1941. The purposes were modified, boundaries adjusted, and the name was changed to the Kenai National Wildlife Refuge with the passage of the Alaska National Interest Lands Conservation Act (ANILCA) on December 2, 1980 (Public Law 96-487 Stat. 2371).

Refuge Purposes: Section 303.4 of ANILCA sets forth the following major purposes for which the Kenai National Wildlife Refuge was established: "(i) to conserve fish and wildlife populations and habitats in their natural diversity including, but not limited to moose, bear, mountain goats, Dall sheep, wolves, and other furbearers, salmonoids and other fish, waterfowl and other migratory and nonmigratory birds; (ii) to fulfill the international treaty obligations of the United States with respect to fish and wildlife and their habitats; (iii) to ensure to the maximum extent practicable and in a manner consistent with paragraph (i), water quality and necessary quantity within the Refuge; (iv) to provide in a manner consistent with subparagraphs (i) and (ii), opportunities for scientific research, interpretation, environmental education, and land management training; and (v) to provide, in a manner compatible with these purposes, opportunities for fish and wildlife-oriented recreation."

The purpose of the Kenai National Moose Range is to be considered to the degree that it does not contradict ANILCA purposes. This purpose "of protecting the natural breeding and feeding range of the giant Kenai moose on the Kenai Peninsula, Alaska" is deemed complementary to the ANILCA purposes and therefore is included in reviewing compatibility of uses.

Additionally, the Wilderness Act of 1964, Sec. 4(a) provides that the purposes of the Act are to be within and supplemental to the purposes for which National Wildlife Refuges are established and administered. These purposes, which are also deemed to be complimentary to ANILCA purposes, are applied to the approximately 1.3 million acres of Congressionally designated Wilderness within the Kenai National Wildlife Refuge. They are also applied to the remaining approximately 700,000 acres Refuge lands (that are not designated Wilderness) in any way that the use(s) being evaluated might affect the designated Wilderness Areas. Purposes of the Wilderness Act are generally described in Sec. 2(a) of the Act: "...to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify, all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition, it is hereby declared to be the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness. ...these shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness...". Sec. 4(b) of the Act further defines the Act's purposes in stating: "...wilderness areas shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use." Wilderness is defined

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in the Act in Sec. 2(c) as: "A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in the Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological or other features of scientific, educational, scenic, or historical value."

Scope of this Compatibility Determination: The National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, requires that all refuge uses that are permitted must be determined to be compatible with the primary purpose(s) for which the refuge was established. This standard is also specifically adopted by ANILCA in Section 304. For the purpose of this determination, Refuge purposes include those five purposes included in ANILCA Sec. 303.4, the Executive Order purpose that established the Kenai National Moose Range, and the purposes of the Wilderness Act (as they apply to Congressionally designated Wilderness).

A use may be determined to be compatible if it will not materially interfere with or detract from the purposes for which the refuge was established. The use does not have to contribute to achieving refuge purposes, but it may not significantly conflict with them.

Uses that are granted by law, or that are included as part of a legal property right, are not subject to the compatibility requirement. On the Kenai National Wildlife Refuge, this exception applies to oil and gas exploration and development activities within the Swanson River, Beaver Creek, and Birch Hill lease areas (where leases have been granted on about 13,252 acres under the Mineral Leasing Act of 1920) and where subsurface ownership and associated rights have been granted for coal, oil, and gas under provisions of the Alaska Native Claims Settlement Act of 1971 and associated settlement agreements (186,383 acres conveyed; remaining entitlement equals 18,571 acres). Therefore this determination applies only to the remaining Refuge lands that are not included in current oil and gas leases, where Federal ownership of the subsurface estate occurs, and outside Congressionally designated Wilderness (See Figure 1). The U.S. Fish and Wildlife Service (Service), however, has dominant jurisdiction over the Refuge lands for wildlife conservation purposes even though the lands may be subject to prior rights (43 CFR 3101.5), and though compatibility standards are not applied to areas of existing leases and non-federal subsurface ownership, the Service has the authority and responsibility to protect wildlife resource values in these areas through a variety of laws, regulations, and agreements.

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Section 1008 (a) of ANILCA provides: "The Secretary shall establish, pursuant to the Minerals Leasing Act of 1920, as amended, an oil and gas leasing program on the Federal lands of Alaska not subject to the study required by section 1001 of this Act, other than lands included in the National Petroleum Reserve-Alaska. Such program shall not be undertaken by the Secretary on those lands where applicable law prohibits such leasing or on those units of the National Wildlife Refuge System where the Secretary determines, after having considered the national interest in producing oil and gas from such lands, that the exploration for and development of oil or gas would be incompatible with the purpose for which such unit was established." In complying with this provision of ANILCA the Service has set aside during the comprehensive conservation planning (CCP) process the approximately 1.3 million acres of Kenai Wilderness from oil and gas exploration and development (precluded by the Wilderness Act). The Service also complied with the mandate to consider the national interest in producing oil and gas from the Refuge in the CCP process through consideration of correspondence with the Department of Energy received on September 15, 1987.

In summary, various laws and agreements limit the scope of this Compatibility Determination. Approximately 199,635 acres of Refuge lands are currently encumbered by legal property rights allowing some form of oil and gas exploration and development. Up to 18,571 additional subsurface acres (for coal, oil, and gas) can be conveyed to Cook Inlet Region, Inc. (CIRI) without being subject to compatibility. Approximately 1,315,809 acres of Refuge are precluded from oil and gas exploration by the Wilderness Act and ANILCA. Therefore, this Compatibility Determination only applies to the remaining approximately 472,630 acres of Refuge that has not been specifically opened or closed to oil and gas exploration and development by law and other legally binding agreements. Some of this remaining area has also had restrictions on oil and gas activities as result of CCP planning and Service policy; however, these management directions do not preclude an effective compatibility review.

Description of Use: Oil and gas activities within the Kenai National Wildlife Refuge have occurred for over 40 years and a diversity of exploration and development technologies suitable for application to this climate, terrain, and subsurface resource has been applied at one time or another. Exploration has been conducted by using dozers to cut seismic trails, helicopters to transport portable drills, and vibroesis machines on constructed roads and pads. Explosives have been detonated above ground (Poulter technique) and underground. Both 2-D and 3-D seismic techniques have been employed. Production facilities have been built to recover and transport both crude oil and natural gas and include gravel roads, pipelines, airports, towers, compressor plants, landfills, and a whole host of structures and facilities to aid the recovery, treatment, and transport of the raw petroleum product, and administration of the areas.

Anticipated Impacts of the Use: Evaluation of the expected effects of any near future (within the next 10 years) oil and gas activities on the Kenai National Wildlife Refuge are based on extensive analysis of the over four decades of past and current activities. Impacts of the past and current activities are summarized below.

Habitat Losses By 1998, at least 524.4 acres of the Refuge were lost as wildlife habitat associated with oil and gas development due to drill pads, facilities, and roads, and an additional 424.3 acres of wildlife habitat were lost because of oil and gas support infrastructure (access roads,

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pipelines, and power lines). The estimated loss of wildlife foods in various habitats include 496 to 1,070 pounds per year of American devils club fruit for black and brown bears and over 640,000 pounds per year of browse for moose and snowshoe hares. These habitat losses affecting browse were estimated to be the equivalent of feeding 41 to 136 cow moose and 411 snowshoe hares per year. Fragmentation of habitat, and increased disturbance and animal mortality is also of great concern but more difficult to quantify.

Fire Oil industry activities have directly resulted in few reportable fire incidents over the years; however, indirectly (by opening up areas with roads, seismic lines, etc.) 24 human-caused fires can be attributed to oil development actions between 1965 and 1998. These include 10 from recreational activities, 3 from burning debris, 2 from equipment, 2 from burning vehicles, 1 from cigarette smoking, and 6 miso. or unknown. The most notable fire within the oil fields during this time period was the 1969 Swanson River Fire where a camper, accessing the area via oil field roads, allowed a campfire to escape and caused 83,000 acres of Refuge to burn with suppression costs totaling \$ 23 million. While good moose habitat resulted for approximately 20 years after the fire, habitat damage was also severe. For example, 110 dozers constructed, and later rehabilitated, 115 miles of fire line on the Refuge while working on the 1969 fire.

Seismic Exploration Traditional bulldozed seismic trails, primarily constructed during the 1950's and 1960's, total over 874 miles on the Refuge. Most of these trails have not completely regenerated and have resulted in additional lost natural habitat. They also serve as access routes for illegal ATV use which has caused additional habitat damage, erosion, illegal take of wildlife, and wildlife disturbance. More modern seismic technologies have been employed in recent years. The winter 1997-98 3-D seismic work (using heliportable drilling units rather than cat trains) resulted in chronic spill problems with fuel and hydraulic fluid; blow-outs from drill holes; and significant littering with flagging, wires, paper, and non-detonated explosives. Disturbance to wildlife was documented in several areas, including two packs of radio-collared wolves being located significantly less often in the exploration areas, a radio-collared lynx being illegally shot by a worker, and disturbance to denning bears. The disturbance of one brown bear from its den resulted in the fatal mauling of seismic crew worker.

Contaminants Spill reporting requirements imposed upon industry have changed over the years. After the initial discovery well at Swanson River in 1957, the only reporting requirement was "that the refuge manager be notified". The refuge more or less depended on the integrity of the individual field operator to report spill events. This trust-based system seemed to work fairly well, but there were events detected during routine fly-overs and on-the-ground inspections by Refuge personnel that were not reported in a timely manner, if at all. Also, spill records are somewhat incomplete. Review of available information indicated that an average of 13 spills per year occurred within the Swanson River Field between 1957 and 1998 totaling 452 gallons of diesel, 65 gallons of methanol, 12,745 gallons of crude oil, 2,213 gallons of triethylene glycol, 21,525 gallons of produced water, 100 gallons of solvents, 85 gallons of hydraulic fluid, and 35 gallons of anti-freeze. Additionally 107,000 tons of PCP contaminated soil have been remediated at a cost exceeding \$40 million, and a large, but unknown quantity of xylene has been released at the Swanson River Pipe and Supply (P&S) Yard and has been undergoing remediation treatments for several years.

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Spills at Beaver Creek Field have averaged 4 per year from 1988 to 1998 including 400 gallons of diesel, 31 gallons of methanol, 3,000 + gallons of crude oil, 163 gallons of produced water, 3 gallons of hydraulic oil, 3 gallons of motor oil, and 2 gallons of Perolite.

Contamination events can be characterized as small, sometimes chronic, or major spills. Many small spills may go largely unnoticed and unreported. Major events within the Swanson River Field include an April 18, 1969, oil spill into the Swanson River, the PCB Contamination resulting from a compressor plant explosion, a December 12, 1986, gas blow-out, a spill or chronic leaking of volatile organic compounds from a tank farm in the P&S Yard, flare stacks and tank setting contamination, and flow line leaks or breaks resulting in spilled crude oil in 1991, 1994, and 1995. On January 7, 1999, a major spill was discovered that exceeded the total known crude oil spilled within the Swanson River Unit since the discovery in 1957. Final estimates for the 1999 spill included 134,000 gallons of which approximately 19,000 was crude oil.

Major spill events within the Beaver Creek Field include a February 1967 catastrophic blow-out when high pressure gas at the 9,300' level entered the well casing and escaped to the surface formation. Other events include a summer 1988 tank farm spill, a 1990 diesel spill (a primary fuel line from a tank to a generator had been leaking over time), a 1993 spill resulting from tanker loading, and a 1993 tanker leak spread out over approximately 1/4 mile of road.

All major known events were (or are being) remediated to remove as much spilled material as possible.

Noise Oil and gas industrial activities produce significant levels of noise from drilling operations, compressor plants, truck traffic, and construction. Effects from this noise on wildlife populations are largely unknown. Many complaints are received, however, from visitors to the Dave Spenser Wilderness Unit (canoe system) who are able to hear the industrial activity many miles away while they travel through designated Wilderness.

Misc. Impacts Miscellaneous impacts association with oil and gas exploration and development include air pollution from flaring; dust affecting vegetation along roads; collisions with wildlife and vehicles on roads, and with towers and power lines; gravel extraction; buried reserve pit waste and landfills; and human activities resulting in increased legal and illegal take of fish and wildlife.

Determination: The use has been determined to be not compatible with the purposes of the Kenai National Wildlife Refuge.

Justification: The effects of oil and gas exploration and development activities on the Refuge have not contributed to Refuge purposes. Neither have the effects been neutral. Measurable, and often significant, impacts to wildlife and wildlife habitats have resulted from the activities. Oil and gas related activities are often intrusive and long lasting. Long-term evaluation of past and existing oil and gas activities provide reasonable projections of future activities and resulting impacts. Habitat alteration and loss, chronic contaminant problems, and disturbance to wildlife, wild areas, and Refuge users clearly materially interfere with the purposes of Kenai National Wildlife Refuge.

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Effects of this Determination: Oil and gas exploration and development activities cannot lawfully be permitted within the Kenai National Wildlife Refuge except within currently held Federal lease areas and areas where the subsurface rights to coal, oil, and gas are not within Federal ownership. This determination is valid for 10 years unless re-evaluated sooner.

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7-21-99

Date

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9/8/99

Date

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8/25/99

Date

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9/14/99

Date